Valerj (G.)

PROF. VALERJ'S

INTRODUCTORY LECTURE

ON

CLINICAL MEDICINE.

AN

INTRODUCTION

TO THE STUDY OF

CLINICAL MEDICINE;

AN INTRODUCTORY LECTURE TO THE

MEDICAL CLASS

IN THE UNIVERSITY AT ROME, ITALY.

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LECTURE.

My Dear Young Gentlemen,—You are here assembled for the very important purpose of examining with the utmost attention the manifold infirmities wherewith humanity is afflicted, of determining their various natures and degrees of intensity, of tracing them through their progress, and prescribing for them their proper remedies. In other words, you are here present to prosecute the study of the clinical department of the medical art, to put in practice the varied theoretical knowledge acquired during a course of four years in this University, and to learn how to convert it all into an agency suited to cure, or to relieve the patient. But if such be the intent which has urged you to frequent this School, most difficult, nay impossible, would it be to carry it out without having previously formed a distinct idea of the extent of your acquirements, or, to express myself more clearly, without knowing most precisely the *nature of the action of medicine* on the patient's frame, with *what intent*, and *within what limits* it is lawful for you to exercise it. Ignorant of all this, you will be acting with recklessness in a matter so delicate as is the health of mankind, acting like an artizan who would pretend to excel in his calling without knowing the use or efficacy of the instruments essential to it, or like a pilot who would steer his ship into safe harbor unknowing, or making no account of, the force of the wind, the primary and indispensable agency in favoring his enterprise.

In order, then, to understand clearly the sphere of the healing action, to determine distinctly the true sense and nature of that practical agency which you are to-day invited as so many artificers to exercise, let us, if you please, imagine ourselves to have been present at the cure of a long and grievous malady, executed with the utmost nicety of art, and to have beheld the patient at length completely restored to health. Let us, moreover, fancy ourselves, after this fortunate issue, to be called as umpires in deciding the following controversy, which might have arisen among those who witnessed the said recovery: "*To whom is due the honor of the cure?*" Some would pretend to attribute it to the highly-skilled physician, others to the all-potent *vis medicatrix naturæ*.

Do not consider, young men, as futile the question proposed, nor so easy of solution as might appear to some at first sight. On the contrary, it is a question of the highest importance, including the hinge, the very turning point of the medical art, and daily brought forward by physicians themselves, by patients, and by the public. To be enabled to judge which of the two agents—nature or the physician—operates in the cure of diseases, or, to express myself more accurately, in what degree, and with what subordination, each of these two causes contributes to this effect, is tantamount to understanding in what true and efficient medicine consists, and becoming initiated into the exercise of it through the requisite knowledge of the respective value of all the instrumentalities indispensable thereto.

Who, then, cured the patient? or rather—to generalize the question, as we have to discuss the argument not as it regards an individual case but the whole circle of infirmities—*who cures diseases, Nature or the Physician?*

Previous to pronouncing our sentence, according to the correctness or the falsity of which, correct or false must be the mode of curing, it is requisite first to examine what we should understand by this word *nature*, and in what manner it acts, and afterwards to define the scope and limits of medical action in the cure of diseases.

By the term nature is meant that *aggregate of natural causes and*

powers proper to the living man, which, though irrational and void of volition or discernment, favor and watch over his conservation in the state of health, and his cure in the state of illness, and all this with surprising regularity. "Uti solerter sanitatem tuetur, sic optime morbis medetur natura," says Sydenham. "Quoties vero naturam nomino, toties causarum naturalium complexum quemdam significari volo; quæ quidem causæ, brutæ licet et omni consilio destitutæ, non tamen sine summo consilio reguntur, dum suas quæque operationes edunt suosque effectus exsequuntur."

This definition, as you will see, is used entirely in a practical sense; that is, conformably with the clinical and experimental view of the subject, and from which I do not mean to depart, and which consists essentially in admitting that man, upon whom we try our medical action, possesses those faculties and powers with which in reality we see him endowed, as likewise in being acquainted with the order and laws by which they act and move. As the word gravitation does not express an hypothesis, but signifies simply this general fact, that all bodies tend towards the centre of the earth, without embracing the question as to whether this depends on attraction, sympathy, impulsion or other causes; so the term nature, in the sense we have attached to it, will not signify an abstract or hypothetical idea, but the existence of the actual powers, which we see acting in the vital organism, occasioning its various phenomena, and operating with incessant activity and wondrous regularity towards its conservation, as well in the physiological as the pathological state,—without regarding in what their essence consists. If, then, we contemplate with astonishment the efficacy of these powers, and the order and mode of their action; if the scope to which they unfailingly tend be that of man's welfare both in health and illness, it is all to be attributed to the infinite wisdom of the omnipotent Artificer of Creation. "Nimirum supremum illud Numen," continues Sydenham in the above-cited definition, "cujus vi producta sunt omnia, et a cujus nutu dependent; infinita sua sapientia sic disponit omnia, ut ad opera destinata se certo quodam ordine et methodo accingant; nec frustra quicquam

molita, neque nisi quod optimum est, ac toti rerum fabricæ suisque privatis naturis maxime accommodum, exsequentia." Not otherwise writes Baglivi: "Naturæ nomine non intelligo sapiens quoddam Phantasma vagans et consilio singula dirigens, sed complexum quendam generalem causarum naturalium quæ, licet consilio destituantur, effectus tamen suos pariunt juxta leges a summo conditore inditas, atque ita ordinate ut quasi a summo regis consilio videantur."

In order to prove that man receives and retains within him by means of his original organization and conformation an aggregate of special causes and powers suited to his existence and preservation, it will suffice to bestow a rapid glance on the functions which are incessantly at work within him; for function comprehends action, or movement, and movement the cause or force which produces it.

The fluid blood, so complexly composed as not to be reproduced by the most accurate chemical synthesis, although by the process of analysis its component parts are well ascertained, impelled from the heart, circulates by means of the arteries through every part of the body. Containing in itself the anatomical elements of our tissues, during its course, and at its contact, not only all the organs absorb the materials of their manifold and respective secretions, but even every cell, every fibre selects and appropriates to itself the hystologic element from which it is formed, just as the beast of the field tastes and chooses in the flowery pasture such herbs as most please and quicken its appetite; while the molecules, already worn out and rendered useless to the economy, are secreted and absorbed, and by the current of blood are afterwards eliminated through their proper emunctories. Now this vital fluid, from having given to each organ the materials of so many secretions, from having nourished every part of the economy, that is, administered to each the *unicuique suum*, undergoes a diminution of its reparative substances. But returning through channels quite different from those by which it had departed, to the heart, the centre of its motion, it receives the product of the alimentary substances, wonderfully elaborated by an apparatus of organs surprising and inimitable in their structure; thence

passing into the vast superficies of the lungs, almost in contact with the atmospheric air, it becomes purified from the noxious gases with which it was intermixed during its passage, absorbs others of a requisite revivifying nature, and thus becomes, as before, the *pabulum vitæ;* that is to say, enriched again with all the various substances essential for the nutritive functions and manifold secretions, it continues its unfailing circulatory motion. In the mean time, as a result of all these processes of composition and decomposition, of assimilation and disassimilation, is produced a constant development of caloric, by virtue of which the body maintains a temperature proper to itself, and almost invariable, whatever be that of the atmosphere which surrounds it. But all this regards only the vegetable existence of man; or, in other words, those functions which affect directly, or I might say silently, his material preservation. Other functions are in activity within him, and of such a nature that, although as requisite as the purely vegetative to his existence, they are, notwithstanding, of a more elevated order, because distinguishing him from all other created beings, rendering him conscious of the vicissitudes enacted within him, placing him in close relationship with external objects, constituting him, in fine, nothing else than an intelligent, moral being. From the necessity under which he stands of receiving and selecting his alimentary food, he is provided with a locomotive apparatus, by means of which he moves wherever he pleases, and thus regulates his relationship with his kind, and with all surrounding objects; and whereas such objects are not indifferent to him, but on the contrary claim a necessary and indispensable connection with his being, he is endowed with a nervous system, by means of which he feels the different impressions derived therefrom, distinguishes their several natures, brings them near or removes them from him—in a word, subjects or withdraws himself from their influence. In truth, this nervous system, arranged in five different forms through the apparatus of five external senses, ramifying through every part of the tissues and viscera, terminating in the great encephalic mass, or rather, if you will, originating from it, is the truly marvellous organ of sensibility. By

means of this, man perceives the various and distinct impressions of heat and cold, of sound, color, taste, and smell of different objects, experiences a sensation of well-being from the state of health, of indisposition from that of illness; it is by it that the soul within the brain exercises its noble intellectual faculties; namely, it feels, thinks, reflects, compares, discerns, judges, wills or rejects, determines the body to motion or station, &c. &c. Finally, in the enumeration of its functions we should not omit that important and mysterious one, which is reproduction or generation. Performed by an apparatus of special sexual organs, distinguished into male and female, it is the result of a series, more or less complicated, of acts by which the individual begets a new being like unto himself, and thus perpetuates his kind through the ages.

Such are the functions of the human vital organism, which I merely mention with the sole view of giving you to understand that their continual and uninterrupted exercise necessarily proves the actual existence and simultaneous action of corresponding *powers*. But though we may all be convinced of this, there are some who might maintain that they are nothing beyond the common, or, in other words, are nothing more than those powers which at every moment we behold acting in the physical world. Now such an opinion would be lamentably erroneous, and in order to refute it we deem it requisite to dwell at some length on this subject.

You are all aware that physiologists, after having attentively examined our tissues, and the various systems and organs derived from them, and finding them, as they really are, endowed with physico-chemical properties (some being, in fact, consistent and tenacious, others extensile, others elastic, hygrometric, &c. &c.), have therefore unanimously directed their studies with laudable and unwearied zeal towards explaining every act of the human economy by the powers and laws of physics, chemistry and mechanics. Numerous, indeed, are the useful results and positive notions with which these studies have supplied us for the elucidation of the many phenomena of our frame, and it would be foolishness to deny their importance, ignorance

and serious loss to be unacquainted with their precise meaning. Who among you is not aware of the utility, the absolute necessity of the laws of optics and acoustics for the explaining of the senses of sight and hearing, those of mechanics for demonstrating the phenomena of locomotion and circulation, the influence that chemical laws exercise over digestion, respiration, absorption, secretions, &c. &c.? The respective degree of action that these material forces exercise over the acts of our frame is a positive and undeniable fact, and constitutes a most valuable fund of knowledge, which we find every day increasing and becoming more complete; knowledge so necessary both to the physiologist and practitioner, and constituting one of the fundamental bases of our acquaintance with the human kind, both in health and illness. But is this aggregate of knowledge sufficient to demonstrate thoroughly any act whatsoever, even the simplest, of the vital organism? No, certainly. Mechanics, with its laws of equilibrium and its three descriptions of levers, will never be able to explain the sometimes incredible amount of muscular force, and much less will the anatomist succeed therein with the description of his successive zig-zags and inflections of the muscular fibres. Chemistry, every day more and more enriched with accurate analyses of all the fluids which circulate within us, will never succeed in re-composing by synthesis a product equivalent either to blood or to any other humor, much less to form a substance that can compare with a bone, a muscle or a nerve. Neither with the theory of affinity, of catalysis, endosmosis, or exosmosis, will it succeed in demonstrating how that bread and onions, as the saying is, with which yon poor man is nourished, can be converted, equally with the fibrine of a succulent paste eaten by a *gourmand*, into blood so rich as afterwards to be transformed into the whole distinct and varied series of the hystologic elements of all his tissues. What law more fixed and general than that of the force of gravitation, which the whole universe obeys? and yet man, at every step he takes, is being uplifted from the earth, and his humors incessantly ascend from the extremities of his feet to the thinnest tips of his hair. But, you will say, do not the degrees of calibre of the

vessels, their valves, capillary attraction, atmospheric and muscular pressure explain this phenomenon? No, certainly; all these and such like causes doubtless contribute, each in its proper degree, towards producing it; but for its complete demonstration we must recur to the irritability of the muscular fibre of the heart and arteries, to the stimulating force of the blood, and to that of the nervous system, which exercise their influence up through the whole ramifications of the circulatory system. Now such powers, as you well know, are quite of a different nature from those called physico-chemical. And what will the professors of physics and chemistry say respecting the recondite phenomenon of the nervous action? By which of the forces which regulate the materials of their experiments will they explain the transmission to the common sensorium of the impressions received by the senses, or the motive impulse communicated by the sensorium to the very nerves interspersed through the muscles? Microscopic researches have succeeded admirably in discovering that the composition and structure of the nervous system results from the tubes and corpuscles, or cells, and moreover that the nervous motive fibres are distinct from the nervous sensitive fibres in the cerebro-spinal axis, and from the rachitic nerves; but notwithstanding all this, the cause of the nervous action is still a mystery! The numerous electrical experiments have proved, that if nervous phenomena are not without an analogy with electric phenomena, they are nevertheless far from being an effect of electricity and magnetism. In fact, it has been ascertained that the nerves, contrary to the expectation of so many experimentalists, are bad electric conductors, and that the velocity of the nervous currents of the nerves is much less than that of the electric currents up the conductors of our physical apparatus. Electricity travels nearly at the same rate as light—that is, more than 500 millions of metres in a second; the nervous currents travel about 16 millions less in the same space of time. What must we conclude from these facts? The deduction to be drawn from them is quite clear. Taking it to be proved and granted that the physical powers, with their various properties and laws, do not

explain completely, but only partially and to a certain extent, the functions of the human vital organism, since between them and the vital acts exists not that full and direct relationship which must exist between cause and effect, we are forced, on logical grounds, to admit and acknowledge that there is within us another principle of activity, which concurs with the aforesaid powers in producing and explaining completely the phenomena of life.

What, then, is this other indispensable element of activity? this other singular force? Mysterious in its essence, though most manifest in its effects, as are in this two-fold regard all the material forces which human knowledge has become acquainted with and made the subject of discussion, this is, the *vital power*, so called, conformably with the concurrent sanction of physiologists, from the universally acknowledged fact, that it exists and plays its part only during life-time, and ceases with it. Diffused through the entire organism, whether this consists of the first embryonic cell or of the body arrived at its complete development, it resides not in one part in preference to another, but pervades equally all tissues and organs, the blood-globule, the muscular fibril, the nervous duct, the cellular lamina, &c. &c. It is no wonder, then, that the physical powers, acting upon an organism endowed by the vital action with such special force, are modified in their effects, and incapable of themselves of producing the numerous phenomena above enumerated; whence it follows that if any philosophic physicians, by defining life as a *contradiction of physico-chemical forces*, have exaggerated the importance of this fact, or rather interpreted it wrongly, it is true, on the other hand, that the physics and chemistry operating in our frames, are *special physics and chemistry*, varying essentially in their results, and exercising themselves not in the museum and laboratory of purely inanimate matter, but in the laboratory of the human organism composed of living matter; that is to say, endowed with a singular force which it receives from the act of existence.

But it is not my purpose to expatiate at greater length in the field of physiology; what I have stated was requisite to prove the

actual existence and specialty of those powers, whose simultaneous and united action constitute the conception of "nature." In order, however, thoroughly to understand their signification, it is necessary that we should now briefly direct our attention to the spontaneous and wondrous effects, which result from these forces, which reside and operate in man, and which we have but just now demonstrated.

The first fact which presents itself, is the perfect order and unison with which the different parts and functions of the organism are linked together. Although this results from a re-union of tissues, differing in form, structure and uses, notwithstanding the limits which the anatomical texture seems to fix between each of them, they are nevertheless intimately associated, and harmonize into a truly wondrous *ensemble*. Granted that the different pieces have peculiar actions, different sizes, and various distances, the influence of the elements of life penetrating into, and distributing itself through each of them, they are connected by manifold relations, and mutually communicate their sensations and influences in such a manner, that all converge, all conspire, and concur towards the same end: the tissues and organs, that is, constitute by their mutual action and symmetry the union, the *great One* of Hippocrates. The same may be said of the functions: could we conceive or demonstrate what nutrition is without digestion, this latter without circulation and absorption, absorption without exhalation or secretion, and vice-versâ? And could these vegetative functions be effected and understood without the concurrence of those called animal or relative functions, namely innervation, motion, sensibility? Let a skilful anatomist or physiologist commence his description and explanation of our body with one tissue, viscus, or function, rather than with another, and he will succeed equally well. Tissues, organs and functions, all are so intimately connected with, and dependent on one another, that to commence or conclude this circle of activity with one point in preference to another is a task equally practicable and regular. "*Nullum meâ quidem opinione*," writes Hippocrates, "*corporis est principium, sed omnes partes ex æquo et principium et finis esse videntur.*

Descripto enim circulo, principium non invenitur." (De locis in homine.) Engrave, I pray, my young friends, this fact on your memories; it is the origin, the efficient cause of a fundamental canon, indispensable for the study of the human organism, as well in health as in illness, and is as follows: That each part sympathizes with, participates and contributes towards the well-being or indisposition of every other part.

Another result of no less importance is, that our existence is limited by a certain space of time: "*Constat, aeterna positumque lege est, constat ut aeternum nihil!*" exclaims Boezio. The duration of man's life is fixed almost invariably, as in the case with all other kinds of animals, nor can the physician or philosopher explain the reason why the lives of some of them are ephemeral and transient, while others enjoy a very long one. We may infer from this, that medicine is not an art, to heal all diseases, but only such as are curable; "*Neque enim fieri potest, ut omnes ægroti sanitatem assequantur!*" Between your action and the disease you will find the alternative of life or death!

On a like principle the organism has also a determined *time* and *measure* (and this too almost invariable) for its complete development, and that of its parts. Dentition belongs to infancy, the development of the organs of generation to puberty, the maximum of muscular fibre and strength is observed in youth, the exuberance of the adipose cellular tissue in manhood; and to be brief, we will state, that the other organic systems, the very splanchnic cavities and the parts contained therein, complete the degree of their respective perfection with a fixed lapse of years, becoming, at their respective periods, centres of an exuberant nutrition and special activity. In the mean time at our twenty-first, or twenty second year, the skeleton attains its maximum height, and grows no higher after; so that if a certain latitude is still left for the further development of the body's transverse dimensions, the *non plus ultra* of his longitudinal one is determined. When all the parts have attained, at the prefixed time and established periods, their complete development, the economy seems

to continue for several years in a state of equilibrium more apparent than real, until following an inverse and equally graduated order, it runs towards its fatal decline. "*Old age is a second childhood,*" according to the vulgar adage; for when the intellectual faculties have relapsed into childish weakness, man's physical structure and with it the harmonious degree and concurrence of the forces, which animate him, have undergone the law of gradual debility, as they had previously passed through their gradual and periodical development. The knowledge of this law is of a most *significant* practical importance. Firstly, by observing that in the physiological state, the economy increases, and develops itself *cum ordine, tempore, et mensurâ*, we may foresee and conclude that, even in the pathologic, the morbid processes must proceed, as in fact they really do, with order, time, and measure; secondly, we shall not be surprised by this other clinical fact, verified by all medical observers, that the physiological changes above mentioned, corresponding to the different epochs or periods of life, exert an influence over the production and frequency of the diseases peculiar to those splanchnic cavities in which such changes are effected. In other words, at the period in which the systems and organs become the centres of predominant development and action, they become subject simultaneously to certain morbid impressions and processes proper to themselves. For this reason it occurred to the celebrated Stahl, with exquisite clinical tact, to divide life into *three medical periods;* the first appertaining to diseases of the head, the second to diseases of the chest, the third distinguished by alterations in the abdominal viscera.

Not last among the wondrous effects of nature are our *instincts* and *habits*. Instinct consists, as you well know, in certain sensations, passions, appetites, aversions, which, independently of the will, urge man to actions, some of which are necessary, others for the most part useful to his personal safety, to the conservation and propagation of his kind. Habit is that faculty which he possesses of being enabled, by the frequent and continued repetition of any act whatsoever, to vary, moderate, augment, and even annul the impressions

caused by the various stimulants acting upon his organs, to nourish himself with variable qualities and quantities of food, to live in different kinds of climate, &c. &c. In life *habit is everything, custom is a second nature;* this is a truth too well known to need any discussion.

In physiological books you will find an ample store of facts upon this subject, as instructive as they are astounding. In the mean time bear well in mind the existence of these two faculties—*instinct* and *habit*—for in the cure of diseases you will find that they exercise a great, though inexplicable influence. How often must we not recur to the habitudes of the patient in regulating the diet, measuring the doses, and the effects of certain remedies? How often must not our curative indications be guided by the mysterious physical or moral impulses of the patient? "*Inest aliquid sapientiæ in ægrotantibus instinctibus,*" exclaimed Boerhaave.

Nor is this the whole category of faculties resulting from the special forces, concordantly and harmoniously acting in our organism; but I have pointed out the principal, and deem them sufficient to make you understand how in the living man all the organs, with the functions, powers and laws derived therefrom, constitute him a *perfect œconomy;* that is, an aggregate of natural and special causes and effects, which, in perfect order, according to fixed methods, and within proper limits, incessantly tend towards its conservation, "*quæ nocte atque die nostris rebus invigilat, contulitque.*" It is just to this aggregate, conformably with the definition quoted from Sydenham, that we have applied the term *Nature*, apprising you, at the same time, that we shall henceforth adopt it in a like sense; a sense unanimously received by all those physicians who, following the doctrine of Hippocrates, cultivate the medical art with positive advantage to humanity.

Having thus defined the word nature, explained its import, and enumerated the principal laws by which it operates in conserving the individual, let us now enter upon the field which more directly concerns us—that of pathology.

Firstly, then, how does nature act in treating with diseases? It is

an axiom as ancient as medicine itself, as unanimously proclaimed by the most renowned physicians of all ages and countries as any obvious and common truth can be, that nature cureth diseases. "*Morbis natura medetur*," says Hippocrates, and Sydenham emphatically expresses himself in a like sense as follows:—"*Natura sibi permissa negotium suum in morbis suo tempore exequitur, materiamque morbosam debito ordine ac viâ tum secernit, tum etiam expellit; nostrâ ope, nostris artificiis, atque auxiliis non indigeat, suis viribus instructa, suis operibus locuples, suo tandem ingenio satis edocta.*" In a similar tone, and in phraseology not less impressive, has this truth been proclaimed by Baglivi, and a host of other standard medical practitioners; nor can we peruse a single treatise on pathology or clinics of any account, without finding therein this truth beautifully expounded. This fact, so auspicious for humanity, that nature cureth diseases, might be demonstrated, *à priori*, as a consequence of the definition laid down; namely, that nature, being the cause of man's conservation in his healthful state, must therefore also be a medicatrix in his after state of infirmity. But we should rather prefer carrying out our reasoning by actual proofs.

It is an ever-occurring observation, numerous and striking examples of which you will shortly witness, that out of ten maladies there are two thirds that cure of themselves, thus forming, by their *natural course*, the numerous class of those that terminate happily through the sole influence of the vital motions. Fevers, inflammations, dropsies, bloody fluxes, exanthemata, neuropathies, sores, tumors, &c. &c., not unfrequently heal spontaneously. And not only this, but we find that even pestilential maladies, epidemics, cholera, dysentery, and even the plague itself, are overcome by the sole aid of nature. Never shall be forgotten the fact related by Santorio, a professor of the seventeenth century in the University of Padua, namely, that, of the population affected with the plague, the nobility and wealthy who received medical aid succumbed, while a considerable number of the indigent who were left to themselves recovered. "*Nobilium fere nemo cum remediis sanatur, qui peste laborat, Plebei vero sine iis plures sanan-*

tur." (Sect. I., affect. 139.) The same may be said of many other maladies, which terminate more happily without the aid of art than with it; the reason of which is most clear, for when nature suffices of herself to effect the cure, the intervention of the physician and his remedies only act as an obstruction to her perfect operations. Nature frequently resembleth some classic artist executing with incomparable skill a perfect work. Even the slightest touch from another artist, however skilful, could only mar its beauty. When Raphael's pencil, and the great hand that sculptured the *Apollo Belvidere*, were working out their masterpieces, which we so highly admire, could other hands, even the most practised, have touched without spoiling them? The similitude, though unhappy as to the subject, is perfectly *apropos* with regard to the result. And, alas! how often do we not only lack skill, but also, unmindful of the natural course of diseases, militate against, ruin and destroy by *ill-timed indications* and violent remedies the sublime workings of nature, entirely directed towards curing them? "*Natura omnia omnibus sufficit,*" exclaims Hippocrates, and self-taught, "*nemine edocta, saepe novum opus exorditur ubi conatus nostri desiere,*" adds Baglivi. As she is the efficient cause of health, it is quite natural that she protect it from those vicissitudes apt to disorder it; and this she does by means to us sometimes mysterious, but generally most perceptible.

And what are these means? You are already aware that I would allude to certain crises, or great perturbations, which occur in the course of maladies, accompanied or followed by excretions, or abundant deposits of morbose matter, as, for instance, perspiration, hæmorrhage, an abscess, diarrhœa, sedimentose urine, &c. "*Crisis, aut judicium fit in morbis, quando et magnae perturbationes accidant, et nova apparent phaenomena; subito, simulque haec apparent sequuntur vel et comitantur insignes excretiones, vel dispositiones humorum in loco quodam corporis, id est abscessus.*" &c. (Van Swieten, vol. v. p. 34.) You are aware of the many dissensions which have arisen concerning the subject of the crises, and that certain solidists have denied or considered doubtful their existence, holding them as a deceit, a mere effect of

superstitiously deluded observation. To my mind the best confutation that could be instituted against this class of physicians would be that of inviting them to visit some hospital, thus imitating Diogenes, whose sole reply to the sophism of Zeno against the *possibility of motion* was to invite him to take a walk through the portico. In that hospital, or in any other assemblage of patients, they might witness, for instance, an epistaxis which frees a plethoric subject from a congestion or cerebral hæmorrhage, already on the point of bringing him to the grave; a profuse perspiration which dissolves a rheumatism; a fit of vomiting which puts a term to a colic of the stomach, occasioned by an indigested meal, or by the absorption of a poison; an abscess, an aposthema which arrests the danger of a malignant fever; a bilious diarrhœa which resolves the jaundice; an abundant expectoration which arrests a violent paroxysm of asthma, or voids a vomica which threatens life itself; purulent urine which in the course of one night does away with an abscess, which the surgeon's hand was about to open on the following morning; a parotitis which brings to a favorable issue a maniacal delirium, or a violent nervous fever; a succession of boils which cure a quartan ague, that had for several months been the *opprobrium* of the physicians, or a convulsive cough which had resisted manifold remedies; a profuse diuresis, vainly sought to be promoted by numerous diuretics, which, brought on by the supervention of a passing fever, voids a frightful ascites, resolves an anasarca; and so on with analogous cases. I could, in fact, pass in review the whole lengthy series of the various kinds of diseases, and prove to you by similar facts, that these crises, or evacuations, constitute the sensible mode by which nature oftentimes effects their cure without the physician's aid. I have enumerated to you such of them as occur most frequently, and have chosen those which, impressing more deeply the practitioner's attention, do not easily pass unobserved. What though the crises are sometimes not very manifest, because effected without any exacerbation of the symptoms which usually accompany them, and by the evacuation of matters not copious nor profuse, but rare and thin, and escaping in an

unaccountable manner; they nevertheless occur, nor escape the attention of a mindful observer. In maladies of long duration, in which the patient slowly recovers, it is quite natural that we cannot notice great perturbations previous to, or simultaneous with, great crises; and it is logical to conclude that all the various secretions can and must eliminate the morbose matter through their respective emunctories in the same manner as it is gradually matured by nature in the affected organism. In proof of this, we find that slow nervous fevers improve after some weeks on account of no other evacuation than a slight general mador, sustained for several days on a skin which at first had been arid and dry; ancient, deep congestions of the liver are insensibly improved by the intervention of alvine matter somewhat dissimilar in quantity and quality to what it is naturally. How frequently occurs a particular odor of the perspiration or of the breath, a change, apparently indifferent, in the urine, all which relate to the degree of improvement observable in the course of the malady; and thus passing off unnoticed by the physician, so as to induce him to think that the disease terminated without any crisis. Critical absorptions, too, followed by critical emissions of morbose matter must, and really have several chronic affections which are also cured by the mere efficacy of nature, aided only by a simple change of air, food, system of life, by the organism entering into a different period of age, by the mere relinquishment of a false curative method, &c. Do we not, in fact, behold glandular tumors, hypertrophies of certain viscera, splænic cysts, chronic rheumatisms, dermatoses, &c., spontaneously and gradually resolve themselves? and whereas none of you can deny that all these are infirmities *cum materiâ morbosâ*, it follows that, once granted their natural recovery, they must also have gone through the process of maturation, absorption and elimination of the said matter. An instance drawn from a serious, and unluckily in our country very frequent malady, will serve to illustrate our argument. A man becomes apoplectic from cerebral hæmorrhage, but fortunately recovers, finding himself, however, hemiplegic: after a few months, more fortunate still, without having had recourse to a

physician or medicine, he recovers even the use of his limbs. Now, in this case, there was an extravasation of blood in the brain, and to the end that the patient might recover, nature was forced to absorb it, but previously to the absorption, to transform its globules and other component parts by a metamorphosis not dissimilar to that by which we see large ecchymoses resolve themselves after external contusions. Now, once absorbed, we must necessarily conclude that it must be also eliminated from the economy by some of its emunctories, or that this blood effused within our tissues (the same may be said of the humors that have degenerated and have lodged for a long time in the viscera) may, after having been re-absorbed, and as a necessary condition for the re-absorption previously transformed, may, I assert, be re-composed, and return once more to constitute an integral and reconstructive element in the mass of vital fluid. Now this second conclusion, although it seems not unreasonable when we consider the powerful resources of our economy, we are far from being able to prove; while, on the other hand, the former fully tallies with the doctrine of the crises, and is daily attested by facts minutely observed.

But not only the natural course of diseases teaches us that they are cured by the crises, but also that these crises do not act irregularly or confusedly, nor in a uniform manner in all kinds of maladies. This standard fact of the crises is comprehended within the directing law of all created things, as I have already stated in speaking of the conservative nature of our economy in its healthy state; that is to say, even the crises are accomplished *cum ordine, tempore, et mensura.*

Orderly.—You do not find, for instance, that an indigestion is cured by perspiration, but by vomiting, and conversely a rheumatism is cured by perspiration, not by vomiting; an abundant flow of urine will prove critical for a dropsy, and a dropsy will not be cured by a puriform expectoration, as is the case with bronchitis or pneumonia. An epistaxis will decide favorably the issue of a congestion, an inflammation or a fever, but not of smallpox, for instance, nor scarla-

tina; this latter is arrested by a desquamation, and the Arabic exanthema by suppuration. And for sake of briefness, I will state, that every morbose process has a particular crisis relative to the nature of its cause, the tissue and organ that it attacks, the course it pursues, the age, constitution and temperament of the individual, epidemic influence, &c. We may lay it down as a general rule, that the crises for hæmorrhage ordinarily appertain to inflammations, those for mucous secretions to phlogosis of the mucous membranes, so widely extended over such a number of apparatus; the crises through the skin to a great variety of pyrexiæ of a nervous and humoral character; in fine, that the critical fluxes of the glandular system belong rather to malignant and typhus fevers, the plague, &c. &c.

Within due limits.—The reason of this is so clear, so intimately connected with the very nature of the crises, that it requires but a brief explanation. If the critical perturbations were too violent or too gentle, if the salutary evacuations were too abundant or too scarce, in other words, if they were not commensurate with the nature and specialty of the manifold pathologic processes which they are to resolve, they would be no longer beneficial, and, so far from effecting a perfect cure, would either prove useless or detrimental to the affected organism. *Nil paucum criticum* essentially comprehends the inverse aphorism of *nil multum criticum*. Thus, for instance, a hæmorrhage, a fit of vomiting, a perspiration, a diarrhœa, if irresistible and ungovernable, so far from being completely favorable to a congestion, a gastric obstruction or a fever, would reduce the patient to a state of deplorable inanition: on the other hand, we do not find that a slight purulent spitting empties a vomica, nor that a few drops of blood are sufficient for a real plethora, nor does a diuresis of a few hours dissolve a general anasarca, and so on with regard to analogous cases. The crises, then, exercise themselves within sufficiently just limits to operate a perfectly favorable change in diseases, which is the scope of the salutary nature. If at times this does not occur, there are reasons for it, which I shall explain to you hereafter. For the present you will permit me, for the due order of my

discourse, to speak only of the healthful and benignant side of nature, or of the operations she performs purely, and without any concurrence of ours, for the welfare of our affected organism.

At proper periods.—Although by the simplest notions of physiology, which plainly teach us that the whole economy, as regards increase or decrease, action or repose, as well of itself as of all its tissues, organs and functions, is influenced by time's silent sway; although by the simplest notions of pathology, which teach us that each peculiar malady takes its proper course almost invariably, physicians should, even previous to their individual experience, have unanimously foreknown and concluded that even crises are regulated by time, that is to say, by a law which appoints the periods of their first appearance and of their maturity; notwithstanding all this there has been no truth in medicine so much discussed, contested, and, I would also say, wrongly interpreted, as that of critical days. Sydenham, who next to Hippocrates may be justly considered as the most experienced observer of diseases, surprised at the *regularity* of of their *periods*, the peculiar order and method with which they occur, and considering the phenomenon neither more nor less surprising and mysterious than so many other realities which occur in creation at appointed periods, rather than confute the objections brought forward by the opponents of this doctrine, meets them with the following query:—"Tell me, explain to me, I pray you, if you make so great account of yourselves, why the horse attains to its perfect growth at the age of seven, man at the age of twenty-one; why this plant is wont to flower in May, that in June, another in a different month; and so on with so many like phenomena of Creation?" *Libenter enim a vobis quaesierim cur aequus ad acmen suam pertingat VII. annorum spatio, homo XXI? cur in plantarum regno haec mense Maio, illa Junio, ista alio florere soleat? ut innumera alia nunc silcam.*

As for us, we shall deport ourselves in a like manner, preferring, like Sydenham, not to discuss the arguments brought forward against the existence of critical days; but simply noting the fact, we declare that, despite the opposition from so many quarters, the doctrine of the

critical days has never fallen to nought, but still lives and prospers. Philosophers and physicians, even the very vulgar, and patients themselves, all respect it. "*Savans et peuple, médecins et malades touts admettent la doctrine des jours critiques dans les malades.*"—Ballonius, Epid., lib. 1st. In fact, observation, the most faithful guide to our attainments, teaches us that as diseases have their regular periods of increase, acme and diminution, so their great and manifest changes, favorable or unfavorable *(ad salutem aut mortem, ad melius aut ad pejus inclinationes)*, mostly take place on certain stated days, called therefore *decretory*, while on certain others they are pre-announced, and these days are hence called *indicatory;* and on certain others they occur but rarely, or in an irregular, imperfect, and often fatal manner, and these last are called *intercalary* days. I shall not here stop to specify the cyphers which represent these different days; you have certainly engraven them in your memories. However, there is one thing which I deem it not superfluous, but even useful to be remembered, and it is that Hippocrates was the first who established and noted their importance. Nor in doing this was his mind pre-occupied by any pre-conceived numerical law; but endowed with a sublime genius, which no law affecting the patient could escape, by merely observing with clear introspection the natural progress of the morbose processes, he distinctly perceived that their issue in recovery or death, and the critical phenomena which influenced them beneficially or otherwise, for the most part occurred on stated days, which, however, he does not lay down as unexceptional, but the most oft-recurring, not as regards the universality of diseases, but the greatest number of them, not as absolute, but dependent upon a multitude of circumstances; as, for instance, the diversity of age and strength of the patient, their surroundings, difference of seasons and climate, epidemic influences, &c. It suffices to read the golden work by *Testa*, a celebrated physician of Ferrara, "*De vitalibus periodis aegrotantium et sanorum,*" and Anthony de Staen, in his "*Ratio Medendi*" (wherein, with unmatched erudition, he analyses the course, crises, and critical days of more than two hundred cases of maladies and epi-

demics recorded in the works of Hippocrates), to be convinced that this truth rests on unshakable evidence, connected with which it will be of some service to repeat the fact, that the father of medicine, in enumerating the critical days, had no other guide than mere observation. The result, then, is that physicians of every age and country, independent of every system, and true to the maxim of observing and never tampering with the operations of nature, whenever she was self-sufficient to cure diseases, unanimously noticed not only the crises, but the regularity of the critical days. *Foresto*, for instance, gives the history of forty-eight cases of intense malignant fever, thirty-eight of which terminated on the critical days, declaring with rare minuteness, that among these patients five were favorably determined on the fourth day, twenty-two on the seventh, seven on the fourteenth, two on the eleventh, one on the seventeenth, and another on the 21st. Now, if out of forty-eight patients three fourths were determined favorably on the critical days, these days must be distinguished from the others; and if out of these critical days twenty-two were favorably decided on the seventh, and seven on the fourteenth, out of the sum total of thirty eight cases, there is no doubt that these numbers seven and fourteen are to be preferred to the others. Jandie Bauvais, in his "Simeiotique," states as follows:— "I can positively assert that, during my twenty years' experience, I have always observed the crises occur at the periods noticed by Hippocrates, in all cases wherein no disturbing medicine interfered with the regular course of the disease; and my pupils at the *Salpétrière* have frequently seen the crises occur on the critical days even among the aged." Andral himself, in his medical clinique on acute diseases of the chest, has observed that out of ninety-three cases of recovery, three fourths of them coincided with the critical days.

But the critical evacuations on critical days are not the sole means by which nature healeth: another mode of recovery, equally efficacious, and confirmed by daily experience, is *metastasis*, that is the changing of the seat and form of the disease, by means of which the grave symptoms of an affection, in most cases internal and danger-

ous, are arrested, giving place to the manifestation of another affection of much less importance, and often curable. This fact, notwithstanding the different interpretations which it has received, in conformity with the various systems which have prevailed in medicine, is incontestable, and a few examples will suffice to convince you of its truth.

Suppose that a certain person has suffered for many years, from a persistent dyspepsia, or if you will, from vertigo, or neuralgia in any region whatsoever, or from a violent intestinal colic; and suppose that (no matter which of these morbose forms) it attacks him with recurring paroxysms several times a year, and at each time with redoubled intensity. All on a sudden he is fortunately attacked by a fit of gout, and from that instant the vertigo, the dyspepsia, the colic, or any other serious malady whatsoever that a shifting and visceral gout can engender, ceases, never more to return. A girl is affected from hemoptysis, which after recurring several times, is finally accompanied by slow fever with cough, pain in the chest, puriform sputa, and a certain degree of general consumption. The case is adjudged to be most serious; but while the members of the family almost despair of her recovery, there appears on the skin of the patient a herpes inherited from her parents; the pulmonary syndromes are checked, get better, and finally cease completely, and the poor girl recovers henceforth her strength and health. A man of bilious temperament, but of a robust constitution, in a few years becomes quite indisposed, at first by a fierce hepatitis, then by jaundice of long duration, and ultimately by repeated attacks of cerebral congestion. On a fine morning he ejects with his excrements a copious quantity of black venous blood, preceded for several days by more or less tenesmus, costiveness, and a sense of burning along the rectum: from that moment sets in a hemorrhoidal and periodical flux, from which a long series of years of perfect health compensates him for his by-gone dangers and sufferings. I should draw out this most important subject to a great length if I had to enumerate to you the many like instances, which are daily beheld in medical practice;

the above cases, cited as an abstract, are the most common, and tested by my personal experience. It is not unfrequent, for example, to see a pleurisy, or pneumonitis, or a meningitis suddenly resolve itself by the appearance of an erysipelas; a persistent convulsive cough arrested by means of an eczema, a *fluxus post aures*, or by an acne appearing on the skin of children; an urticaria cure a cardialgia, which for so many years baffled a number of remedies; the appearance of a fœtid perspiration on the feet cure a persistent laryngeal cough in a boy threatened with pulmonary tubercles, and from being thin, and delicate, render him in a short time florid and robust. I myself have seen a spontaneous eruption of boils heal a melœna, which threatened speedily to carry off a noble personage; and not long since I have witnessed a hemorrhoidal affection which permanently arrested a copious hematuria recurring at very brief intervals. In perusing the clinical histories by authors of sound practice, you will find an ample collection of such like recoveries from maladies reputed even incurable, and ultimately brought to a favorable issue by nature in this manner, namely, converting them into diseases of much less importance and danger, by transferring at once the morbose matter or process lodged in a viscus to an external, or less important part of the body. I cannot, in the meantime, too strongly impress upon you not to forget this salutary procedure—or the practical importance derived from it in effecting the diagnosis, prognosis and cure of many diseases we shall treat at the sick bed; suffice it for the present for you to know that so great is the benefit which nature designs to bestow on the patient by this means, that when, like the exclusive anatomo-pathologists you would suppress or inopportunely cure these metastatic manifestations, you inflict the forfeit of death on your poor patients.

But nature, as if not content with curing diseases by means of the crises and metastasis, is wont, moreover, to excite, by a mysterious influence in the affected organism, certain appetites, and sensations, in being blindly obedient to which, the individual, by satisfying them, finds the only hope of his recovery. I have already addressed you

on the subject of these internal spontaneous motions and stimulants, otherwise termed instinctive desires, and stated to you that they not only contribute towards the maintenance of health, but moreover, in several cases towards the cure of maladies. Let us take, for example, a person affected with dropsy, whom the copious variety of diuretic medicines has failed to cure: reduced to the last extremity, he feels a rabid yearning for a certain quality of wine; it is given to him, perhaps against the physician's will; he drinks it, and is cured through the intermediation of a critical diuresis. A person threatened with consumption, whose diarrhœa is increased even by the most selected aliments, feels an unwonted craving for oysters, and by partaking of them the gastric flux becomes moderated, ceases, and he happily recovers his health. A patient affected with a severe dysentery recovers by eating to satiety and with voracity certain pickled meats. Some aged person, ill treated, with a quartan ague, is cured by plunging into a cold bath, to which he felt himself impelled in the height of his feverish paroxysm. How many chlorotic females, whom tonics and ferruginous remedies have failed to invigorate, by merely satisfying their extravagant appetites for hard food and indigestible substances have restored the crasis of their impoverished blood, and thus re-acquired the regularity of their catamenia, to the astonishment of themselves and their physicians! Nor shall I dwell further on these facts, so strikingly curious, interesting and mysterious, for the history of medicine supplies us with them most abundantly; and you yourselves, at your leisure, may make an ample collection of them.

We have, then, heretofore seen that nature cureth diseases, and passed in review the means and order which she adopts for this purpose. I would not, however, that any of you should deem yourselves adequate to solve, by these sole elements, the question expounded in the opening of our discourse, and which I characterized as not being very easily judged with impartiality and soundness of discernment. In fact, if astonished at the extraordinary power which nature displays in the cure of diseases, you decide the cause by a *simple* and

hasty sentence in her favor, and against the physician, you would expose yourself to two strong objections, which would not fail to present themselves to you, and would certainly prove very embarrassing. And these objections are, *firstly*, that nature by curing and operating so marvellously, seems to act with discernment and intelligence. *Secondly*, that for this reason she may be sufficient of herself alone to cure diseases, and, therefore, the *ars medica* and the physician are superfluous, if not hurtful.

The discussion of such difficulties, or the just solution of them, comprehending, as a necessary consequence, both the necessity of medicine and the usefulness of the physician and his remedies, if it requires on my part a clear exposition of the subject, requires on yours the most serious attention.

In order to perceive that nature does not effect the cure of diseases with discernment or intelligence, it is requisite first to bear in mind, that we defined this term as being "an aggregate of forces, which, though special, efficient, and acting according to provident laws for the conservation of our economy, act, nevertheless, of necessity—that is, void of discernment or reflection with regard to the end in view; in other words, they operate fatally, physically, without knowing, or being enabled to avoid or modify the scope for which they were destined by the infinite wisdom of the Creator, namely, the health of the individual. Now the same happens in the state of illness. Nature, the moment our organism enters into the abnormal condition of suffering, displays her salutary activity, but without volition or choice. Indifferent with regard to the consequences of her operations, she is forced to act of necessity, not as a being endowed with will, *compos sui*, but according to those immutable laws which her Author has imposed upon her. Just as a stone thrown into the air invariably falls towards the centre of the earth; just as an acid, when it comes in contact with certain alkalies, is invariably converted into a salt, so the *vis medicatrix naturæ*, invariably and unfailingly, unconscious why or how, effects the process of curing, of restoring health. It hence follows that when we physicians, observ-

ing a crisis, which, far from saving a patient, occasions his death, exclaim, *that nature deceives herself*; our declaration in this case should be received in a metaphorical, not positive sense; because error belongs only to him who possesses the faculty of choosing, and the consciousness of what he is transacting, and not to that which acts through physical necessity, ignorant both of cause and effect, and operating according to determined laws and with appointed instruments. Let me give you here some actual proofs of the truth of my assertion. Let us suppose that several persons, in order to pursue their journey, are constrained, in a state of perspiration, to cross a current of cold water, and that arrested perspiration has been the cause of illness to them all. Nature, ever watchful and operating for their benefit, begets a fever, which on the morrow terminates in the case of one with a profuse diaphoresis; in that of another, far from ceasing, it progresses to a pneumonia; in the case of a third, it results in a violent and acute rheumatism. Now can we interpret these three different maladies, all derived from one identical cause, as an operation of a rational intermediating nature, acting with discernment, with prescience of the result, with well-pondered determination? No, certainly; for, if it were so, she would have produced the perspiration in them all by means of the fever, and would have thus equally freed them from their malady by the shortest, safest and least painful process. Suppose, in like manner, that two individuals have swallowed an equal quantity of poison, and that nature, in order to effect their recovery, has immediately brought on a fit of vomiting (the shortest and most efficacious remedy), and suppose, moreover, that one of them it fortunately cured, leaving no other effects from the poison than a sense of burning in the stomach; while the other, notwithstanding the vomiting, is laid up with a painful and mortal gastritis. These and many other examples, which you may multiply at your pleasure, as numbers of them occur daily, evidently prove that nature acts not with intelligence, that she is not free in her operations, and therefore no wonder that various, and not invariably salutary, must be, and really are, the modes and effects of her action in benefiting

our affected organism. Nor, indeed, can it be otherwise; for, taking it as proved and granted that nature is the re-union of the forces inherent in the living organism, as she cannot exist or act without this latter, so she is obliged to operate in as many different modes as are the different physical conditions which this organism may assume. If we apply a motive power to a watch, or to any other mechanical apparatus, as long as the wheels and other parts of the mechanism retain their stated conditions as to form, size, relationship, &c., the motion will be such as was expected; but as soon as one, two, or all these conditions are modified, the motion must necessarily change, and the changes be proportioned to the respective modifications that have taken place; never ceasing, however, to act uniformly (that is, in perfect relationship and harmony) with mechanical laws. Thus it happens with nature in her dealings with our affected organism. Her beneficent action is unceasing, ever guided with admirable order and by admirable laws, but always subordinate to the condition of our frame, as the motions of a watch are to that of its wheels, and the works of an artizan to that of his implements and the substance which he handles. The better to understand one another, let us suppose that a legitimate inflammation has established itself in a sound lung of a robust person; nature will resolve it hastily by that process which pathological anatomy has now well determined. But if, on the other hand, this pneumonitis attacks a lung granulated with tubercles, or congested with chronic bronchitis, or a person of seventy years, feeble and suffering from disease of the heart—nature, even under such circumstances, will proceed in the work of resolving the pulmonary exudation; but, operating on organs, and with an organic frame quite different, the absorption of the exuded matter will be either incomplete or tedious, or arrested by the complications of coincident alterations; so that, far from being cured, a chronic pneumonitis, or a phthisis, or even death itself, will be the result. Always bear in mind, however, and I deem it useful to repeat it, that these last-mentioned effects, although they seem different from the former, do not cease to be, like this, not only physically necessary,

but even regular, that is to say, comprised within the scale of those laws which regulate the economy in its pathological state.

Let us now proceed to confute the second objection, which consists in considering medicine, and therefore also the physician, as superfluous or hurtful.

And, firstly, I will say that the very experience which teaches us that nature cures a considerable number of diseases without the concurrence of the physician, also daily teaches us that in various cases she remains impotent if not opportunely aided by him. We observe, in fact, as is easily to be conjectured, that her efforts, whether it be on account of the weakness or bad crasis of the organism, or on account of the virulence of the morbose causes, or the gravity of the pathological process, prove insufficient, sometimes excessive, or over-impetuous, and sometimes, too, wrongly directed.

Perhaps it is not possible to establish the exact limits, or mark with precision the circumstances wherein the exclusive power of nature ends, and where it begins to need the aid of art. But it may, nevertheless, be retained as a general maxim (of the truth of which you will shortly be convinced in the very outset of your career), 1st, that nature exercises less activity in chronic maladies than in acute ones; 2dly, that its predominant action, in acute maladies, may either be irregular or too violent, from which arises the necessity of an art capable of aiding, moderating and directing her. And here it will not be out of place to state precisely in what manner this art acts, and ought to act, in order to prove beneficial, and what instruments are to be used therefor. But to proceed aright in such a delicate and important matter we should consider what is meant by disease.

You are all aware of the numerous causes which disturb, convulse, or ruin the human frame. Some of these are congenital with the primordial development of the germs in the very act of its fecundation; others are engendered by the incessant exercise or motion to which all its parts are subject during life; others by the action of a number of agents which surround us, and act upon our organisms not only internally but even in the innermost recesses of our tissues.

Cold, heat, light, electricity, air and the different substances it contains, our aliments and their contents, &c. &c., at the same time that they are the necessary and indispensable agents for the maintenance of our physical existence, create, moreover, to a great extent, the forces termed hurtful, or those that beget that state called disease. Now, however numerous may be the definitions that have been given of this state (definitions, all of which derived from a different system have variously and frequently, with deplorable consequences, influenced medical practice), the best, because most conforming to clinical reality, is that of considering disease as an alteration of the organism, or *a preternatural modification of the body*; a modification or alteration, which necessarily induces a corresponding disorder of its functional condition. What if, in some cases, we fail in discovering the existence of such a modification, or demonstrating in what it consists? Our frame is composed of parts, and of parts with functions; when we find these impaired, we are forced to admit that the instruments that produce them have undergone corresponding damage. The surgical diseases, nay all those termed external, prove this conclusion to be true; we find in each of them that with the functional element the anatomical element is also changed. If we are unable to do this in various cases of internal diseases, it should not be attributed to the want of a pathologic organic process, but to the circumstance that this is not so obvious to our senses as in the external diseases, baffles every attempt at being explored, and, for the most part, operates in the innermost penetralia of our economy. Moreover, if even in the physiological state the minute structure of some tissues, and the crasis of certain humors, are still far from being perfectly known, or from supplying us with a full explanation of the functions derived from them, can we be surprised if, in the pathologic state, many subtle alterations which these solids or fluids undergo should escape our notice?

But to penetrate somewhat deeper into the nature of disease, it is not sufficient to consider it a mere necessary organic alteration conjoined with a functional disorder, and produced by a morbific cause

or agent. There is also another element equally indispensable and important, namely, the state of the forces, or the intermediatory action of nature. Let a piece of red hot iron, or any other injurious substance, be applied to a person who had died a moment previously. Here you see a hurtful cause, a material alteration; but let it, instead, be applied to a living man; what a difference do we not behold in the appearance and quality of the lesion inflicted! What a diversity in the process which ensues! Now this difference, this diversity consists entirely in the presence and reaction of the *ensemble of forces* which we call nature, and whose existence lasts as long as life itself. In fact, whatever be the morbific causes, and the pathologic modifications which result therefrom, experience teaches us that nature instantaneously reacts on them, effecting with that order, and according to those laws and method, of which we already treated, the elimination of the morbose matter, the reparation of the damages inflicted, the recovery in fine of health, of which she is necessarily the protectrix. This stated, and wishing it to be understood that we include all morbific causes in general, we shall say that by an attentive observation of them, we are taught that nature, in this solemn and beneficial task, if at one time she succeeds completely by herself, at another fails, unless we skilfully minister to her convenient aid. But what are these aids, with what end in view are they given or prescribed? Are they more efficient than nature herself? That is, with regard to the cure, do they claim a principal part, a part superior to that of nature, or otherwise? This is what remains for us to determine in order to obtain the object of our lecture.

These aids consist of all those means which in medicine are called remedies, inasmuch as they are proper to effect a salutary modification during a state of illness, and to remedy the damages which it has occasioned the affected organism. Hygiene, pharmacology, surgery, physic, the air, our food, the different exercises of the body, mineral waters, &c., supply such a plentiful quantity of them that we may assert, without danger of contradiction, that there is nothing that encompasseth man in this earth which has not been, and which can-

not be administered as a remedy. However, although each of these substances produces a change, an impression on the organism, this change or impression is not absolute, that is, dependent solely on their chemical or physical properties, but relative and subject to the properties of the organism itself to which they are applied. As between our partaking of food and its being transformed into blood there occur a series of vital acts, to which we must refer in order to explain this truly wonderful and sublime phenomenon, so between the application of any medicament whatever and its effect there intervenes the action of our economy, and determines its real character. Hence it follows that, not *a priori*, but from experience alone, do we come to know the different properties of the numerous means which we call remedies. We see that some of them purge the stomach or intestines; others promote diuresis, diaphoresis, or expectoration; some temper the body's heat and its fevered motions; some soothe the pain or dissolve the spasm; others revive, strengthen and bind the tissues, &c., thus forming an array of practical and positive knowledge, not deduced from any preconceived notions of ours, but from observation and experience. Now, when we prescribe such substances it is clear that we do so with the view of producing such effects; but to the end that they may prove beneficial (for otherwise the substances prescribed would be no longer remedies), it is requisite that they should conform with those which nature herself, as sole curer of diseases, would adopt if she were (as happily she often is) self-sufficient under such circumstances. Nor could it be otherwise, inasmuch as the physician, being ignorant of the intimate nature or essence of the disease, being acquainted only with the manifestations pervious to his senses, cannot at his pleasure and choice imagine or produce solutions and crises, but only imitate, promote and regulate, by his previous knowledge of the effects of the remedies, those which are applicable to each morbose case, and which observation and clinical experience have taught him to be the best suited. Thus, as we observe that nature is wont to cure an indigestion by a fit of vomiting, a gastric obstruction by purging, a plethora or inflammation by

a hæmorrhage, a tumor either by resolution or suppuration, and so on, when we perceive by a variety of signs with which experience has also made us acquainted, that she is incapable of administering such resources, we assist her by such means as are adapted to produce the said effects, taking heed that they be justly suited to each special case; for we should expect no good, nay, should harm the patient, if we sought to cure, as in the cases above mentioned, an indigestion with sudorifics instead of emetics, a gastric embarrassment with expectorants rather than with purgatives, plethora with cordials instead of bloodletting, and so forth. Now, to come to a conclusion, as we have all the elements at hand to do so properly, if nature, unassisted, cures the greatest part of maladies, acts with the same object, order and method, even in those that prove superior to her power and resources; if the remedies prescribed in her aid are, in these cases, nothing more than new instruments placed in her hands, and by her directed towards promoting, moderating and regulating her operations, it follows that *true medicine* consists in *nothing else* than in the *art of imitating nature*, of interpreting and ascertaining her wants, to the end that the physician may opportunely administer to her the aid required. But if medicine be simply the imitation of nature's operations, if the physician be nothing more than her *interpres et minister*, and the remedies simple instruments in her hands, we are bound to agree that nature, not medicine, not the physician nor his remedies, is the curer of diseases, although medicine, by teaching the physician the art of assisting her, and the physician himself by administering to her his remedies have, by their salutary effects, contributed their share in the task. On the other hand, whereas nature would sometimes be inefficient to effect the cure without the intervention of remedies, and whereas these cannot be obtained without the physician, and whereas, again, the physician cannot prescribe them to any useful purpose without being acquainted with his art, so it would be equally just and proper to assert that maladies are cured by remedies, or that they are so by the intervention of the physician, or of medicine. The difficulty, as you

may well perceive, consists entirely in assigning, in this operation, to each agent its proper place and relative degree of influence; and I flatter myself that, from all I have hitherto stated concerning nature, you will not hesitate to assign to her the first rank, considering her as the first and efficient cause, the physician and his remedies as second and subordinate causes.

And to the end that you may thoroughly understand the value and meaning of this argument, so important as to contain within it the pivot of sound doctrine and medical practice, you will allow me here to quote for you a somewhat lengthy passage from Galenus, who, in commenting on the ever-memorable words of Hippocrates, "*natura morbis medetur*," explains this subordination of causes all operating towards one and the same end, namely, the cure of diseases, in a manner and with a lucidness worthy an interpreter of such singular genius and ability.

He, Galenus (in Hippoc. Epid., L. iv., Com. v.), after having observed that Hippocrates asserted, with reason, that nature cureth diseases, thus continues:—"Certain persons will perhaps imagine that this opinion does away with medicine, and converts it into a superfluous and useless art. The words of Hippocrates contain a hidden sense, and require an ampler explanation; and as this subject has not yet been handled amongst us, I shall proceed to unfold it.

"If, then, any one might say that he can rid himself of his malady by means of good *aliments* taken in time and in proper quantities, by means of *fomentations*, *clysters*, *bloodletting*, or other similar measures, such an assertion would not be false, nay, it would be equivalent only to saying, that physicians cure, and that medicine contributes to the recovery of health. But as it may be said, with truth, that physicians cure diseases, so it is equally certain that nature contributes something towards the conservation of the creature, and that she is more particularly instrumental in curing when she effects some *critical evacuation* of noxious humors, as, for example, by means of urine, perspiration, &c. Thus, whereas nature, the

physician and medicine may be equally said to be instrumental in *curing* diseases, so the question may be simply reduced to that of ascertaining which of them should be placed in the first rank, which in the second, and which in the third; and this especially, because, as many other circumstances concur in effecting the cure, we cannot easily assign to each of the said agents that place which actually belongs to it.

"Thus, therefore, nature, properly speaking, cures maladies of herself; but it may be likewise said, with equal propriety, that medicine, the physician, and even the very instruments that are adopted, cure them also. We may add, moreover, that the cook who supplies the *aliments*, the artificer who has made the instruments, and the pharmaceutist who has prepared the drugs, all contribute something to this end, since we avail ourselves of these individuals in the preparation and compounding of the remedies. However, though we say that they prepare the *remedies*, it is not just or accurate to say that they prepare the *materials* of which these remedies are composed, for there is nothing which can really become a remedy if it be not administered under proper circumstances. Thus *wine*, opportunely administered, becomes a *remedy*; whereas if given to a patient wrongfully it may prove the efficient cause of phrenitis, delirium, &c., and hence merits not to be called a *remedy*, but should be considered as a *hurtful cause*. Who, then, is properly the cause why wine acts as a remedy? Is it not he who finds out the method of applying it under proper combinations? But who is this person, if it be not the physician? and it is precisely for this reason that he should acquire the requisite knowledge respecting the subordination of the *causes* concurring to maintain or restore health; for the physician is much more necessary for the patient's health than the wine which he prescribes, whereas *wine* is not and cannot be a *remedy* unless it be given at the time indicated by a number of circumstances, and in such quantities as these circumstances require."

"It is, therefore, the physician alone who knows the time and

manner of using medicaments, not from the fact *of his being an animal endowed with reason*, but on account of his having learned the art of distinguishing what is salutary from what is quite the contrary. Indeed, if he possessed this knowledge simply on account of his being a *rational animal*, certainly all men would be physicians. Hence it follows that the art of medicine is superior in character and dignity to the physician, this latter not finding it in his power to subdue diseases save by the aid of art. Just in the same manner as the instruments he adopts are serviceable to him and his *art*, so *medicine* and the *physician* are serviceable to *nature*, which disposes, governs, and directs all the operations of the human body. Therefore, it is clear how superior is nature to all arts whatever, though they contribute in somewise towards the conservation and re-establishment of health; for it is their office simply to supply her with the materials to be used, just as the other subordinate arts supply materials to medicine and to the physician.

However, though it may be properly said that nature is the principal art of all those that contribute to health, or, in other words, the *primary* and *efficacious cause* of health itself, nevertheless medicine, the physician, and the remedies he uses, may be considered as so many *secondary* and *subordinate causes*, all concurring to produce this effect; and whereas if, in this *chain* of *causes*, one only were wanting, the others could not possibly accomplish it, so it must be most evident that *medicine* is not a *superfluous* or *useless art*."

I now flatter myself to have addressed you at sufficient length to qualify you to sit as competent and impartial judges of the question which has formed the exordium of this, my first lecture; and I hope that you will not hesitate to give it as your verdict regarding the query in general, that *nature cureth maladies*, and on the particular case of the patient, whom we suppose to be assisted and cured with the utmost nicety of art, that *nature cured him also*, availing herself, however, of the remedies seasonably supplied by an able and skilful physician. The honor, therefore, of the cure is divided, and no

one better than Galenus could indicate in such a masterly style the respective degree of praise and action to be assigned to each agent.

Just to recapitulate in a few words what we have hitherto expounded, we say—

1st, That by nature we should understand the aggregate of all the forces proper to man, unceasingly and necessarily operating with providential order and laws towards his conservation, both in health and illness.

2d, That the existence of these forces, mysterious in their essence and their mode of operating, is not a gratuitous supposition, but a fact constantly tested by experience.

3d, That it is this very experience which proves that nature healeth diseases; many of them by herself, others with the physician's aid.

4th, That the physician is therefore useful and necessary, inasmuch as he understands the art of aiding her.

5th, That this art is medicine, modelled after the works of nature herself, that it possesses means fitted to aid her, and teaches the physician the time and mode of prescribing them.

6th, That these means are the so-called remedies, not because they directly remedy the evil, but indirectly, that is to say, acting as instruments whereof nature avails herself in producing those crises and processes with which she only can, and is wont to cure.

But though matters thus stand, that is, medicine and the office of the physician being reduced to these general terms (namely, the former to the art of helping nature, the latter to the minister of the aid), I would not have you imagine that it is easy to practise the art at the sick bed. It is most arduous, my dear young friends, soon to be my distinguished colleagues; and the cure of patients undertaken in the sense, and within the limits above specified, is often a work of the greatest difficulty! I would hazard the assertion that our history contains few physicians who were able to succeed easily in this matter. Ah! how often have we been embarrassed in making out whether that state of vigor or of languor in which nature appears to us,

be absolute or ephemeral, if that tumult or disorder of her motions be transient or permanent, deserving, therefore, to be, or not to be appeased and reduced to order, with the when and the how, &c. Most simple and clear is the classic aphorism of the Father of medicine, by which he reduces to three principal heads the action of medicine in aiding nature. "*Strengthen her*," he says, "*if she be too weak or slow; temper, moderate her, if too strong and violent; direct and calm her, if she be perturbed in her action; always, however, seconding her, never striving against.*" But in its simplicity, what great practical tact and difficulty does not this doctrine contain! And what discrimination, what consummate experience are required to determine clearly those very numerous cases in which the healing powers being sufficient of themselves, render all intervention useless, nay hurtful! Nor do we encounter less embarrassment in applying such a great number of medicines: even a nurse, a pharmaceutist's lad, can tell us that such a substance causes vomiting, another induces sleep, promotes perspiration, expectoration, &c. &c.; but sometimes quite different is the effect of them on such an individual, for it is a difficult matter, even for an expert practitioner, to determine the choice of the remedy and the time it should be administered, and to assure himself with certainty that such shall be the effect produced; "*Est enim hæc ars conjecturalis*," writes Celsus, "*neque respondet ei plerumque conjectura, sed etiam experientia. Et interdum non febris, non cibus, non somnus, non purgatio, &c. &c. subsequitur, sicut assuevit.*" I will but mention to you the obscurity which the diagnosis of various maladies presents, the *occasio præceps* of coming to nature's aid in various others, the idiosyncrasies of the patients, &c., and numerous other obstacles; all which increase the difficulty of our ministry, and render it in point of fact, when we consider the shortness of life, too difficult and extensive to be known thoroughly. "*Ars longa, vita brevis.*"

But I should fear that I had not fully exhausted the subject of this inaugural lecture to clinical practice, were I not to state what you must have known already, namely, that the principles which I have

expounded as lucidly and regularly as my weak ability would permit, are identical with those which constitute the doctrine of Hippocrates. This celebrated physician, *medicorum Romulus, cui nec ætas prisca vidit parem in re medica nec videbit futura*, was the first who based medicine on the unshakable foundation of the healing power of nature. Endowed with a genius born for this art, with an ability and mind the most exquisite that ever any man possessed for observation, it was not long before he perceived, from following the natural course of diseases, that nature is their genuine and efficacious curer, and pronounced the ever memorable and classic words, "*Natura morbis medetur.*" Astonished, too, by the surprising order and means wherewith she operates towards that end, he adds, "*Natura ipsa sibi per se, non ex consilio motiones ad actiones abundas invenit, a nullo quidem edocta, extraque disciplinam ea quæ conveniunt efficit.*" But notwithstanding such high praise, he did not make of her a reasonable and intelligent being, but recognized her to be a necessary force, subject to the wondrous laws which the All-wise Maker of the universe imposed upon every created being specially; hence the organism, says he, knows not, sees not what is doing, knows not what wills, acts by divine necessity, and its operations tend towards the object predetermined. "*Corpora, quæ faciunt non sciunt, quæ vero faciunt scire sibi videntur, et quæ vident non cognosunt; attamen omnia in ipsis fiunt per divinam necessitatem et quæ volunt, et quæ non volunt; unum quodque destinatum fatum explent.*" The body and each of its parts fulfil this destiny, being so intimately connected that one cannot be said more properly to be the beginning than another, while they form a real economy where everything conspires and concurs towards the common weal. "*Corporis nullum est principium, sed omnes partes æque principium et finis; confluxio una, conspiratio una, consentientia omnia.*" Hippocrates, ever an acute observer, and schooled by positive experience, perceived that nature does not always suffice of herself, but that medicine discovers and possesses certain aids capable of stimulating her in discharging whatever is hurtful and morbose, as likewise to force her to manifest to the physician what she stands in need of

and what she requires of him. "*Quando natura non sponte excernenda dimittit, medicina necessitates ac vires invenit, quibus natura coacta indemnis dimittat, sive excernat, nam stimulata monstrat medentibus, quae sint facienda.*" And not to lengthen our discourse with other passages, with which this Romulus of physicians has called this art into existence, and that too quite on a sudden (with a privilege denied by Providence to the other arts and sciences, which, formed by degrees, were gradually developed and perfected), all in a moment, rendered it most conspicuous and useful, ever inquiring and scrutinizing, with impartial vision, and mind intent on clearly seeing, conceiving and judging of the course and phenomena of diseases; observed the rapid or gradual crises with which they terminate, the days on which they are more likely to occur, whether as harbingers of health or death; expounded the doctrine of these crises, and of the critical days, augmenting it with a treatise on Semeiotics as practical as is requisite for the prognosis and cure of diseases; described a great number of maladies with matchless precision, deducing therefrom a most valuable collection of practical aphorisms; and after all, as a consequence of so many observations and studies, concluded, with a practical knowledge which never can be too highly admired, that the medical art includes definitely these three things—the *disease*, the *nature* or strength of the patient, and the *physician*. The physician is the minister of this art; on him it devolves to direct against the malady the powers of the patient and his own. "*Artem tria ista circumscribunt, morbus, aeger et medicus, qui artis est administer, aegrumque oportet una cum morbo reluctari.*".

I have thus explained to you what medicine is, as I intend teaching it you at the patient's bed, and may God grant that, for their happiness and yours, I may succeed in this very arduous task. Henry Cope wrote to Prince Lionel, that he would never have wished to be a physician save by following the doctrine of Hippocrates: "*Nollem esse medicus nisi Hippocraticus.*" Such should be the resolution of us all, being sure, in doing so, to follow that doctrine which, during the long period of more than twenty-four centuries,

when forgotten or neglected eclipsed the science and caused the art to be pernicious rather than beneficial to patients, whilst, when attended and followed, was and will always be their safeguard and the true light which illumines the physician in the mysterious labyrinth of life, and our diseased organism. Do not fancy that the medicine of Hippocrates is ancient and circumscribed; on the contrary, it is ever recent like truth, which never grows old, and so comprehensive as to embrace every progress that must daily and necessarily enlarge our knowledge. If Hippocrates, as was natural, could not perceive everything, he has ably taught others to *see all and see clearly*. His doctrine is as a pyramid which, with the result of our studies and discoveries, we may build higher and still more high, on condition, however, of not touching the smallest stone of its foundation, for otherwise all would fall to ruin, and our medical system would become nothing more (as history proves) than an unwieldy mass of conjectures, an application of erroneous maxims, fatal to diseased humanity.

I am fully convinced, that by practising now-a-days this art according to the dictates of Hippocrates, dictates which, as they were lawfully deduced from the observation of a great genius, have been followed and consecrated by the experience of the best physicians of every age and country, you will not succeed in contenting all your patients, nor in winning the gratitude and esteem of a considerable number among them. And what of that? Shall we desert the truth in such an important matter as the curing of diseases, to embrace the error of this or that system, which best suits the genius of the multitude, or the taste of the age? Let us ever remember, as a moral balm in the afflictions to which our sound method of curing might expose us, that our masters, even Hippocrates, Galenus, Sydenham, and so many other noted practitioners, had also to suffer on this score. A proof of this may be found in several biographical anecdotes and utterances of lamentation, to be met in their works. "*Ce n'est pas la médicine, mais le médecin, qui fait le succès à la cour!*" exclaims one subtle historian, alluding to the incapacity of a court-

physician of his time; and Zimmerman, in his valuable treatise on "Experience in Medicine," relates, that in a large city where there was a host of physicians, the most stupid among them was the most highly esteemed, so much so that fifty or sixty patients presented themselves to him every morning; but that after having examined them all, he was wont to arrange them in four classes, to the first of which he prescribed a purge, to the second bloodletting, to the third a clyster, to the fourth a change of air. Now we too shall witness similar facts, and must bear the same painful consequences; for now and then it happens, that a new and strange system of medicine is introduced and practised, and the most recent destroys the preceding, and becomes more glorified. Really, a few years ago, all diseases were cured, or rather ill-treated, by excessive purging and bloodletting; now-a-days people are endeavoring to do the same by means of hydrotherapy, homœopathy, and by systematically abstaining from any bleeding in genuine inflammation of the lungs. But you, in the meantime, will say, that these errors triumph; that Priessnitz, Hahnemann, &c., have still their followers, and these latter their patients. Ah! let not that surprise, and much less entice you to follow any other path than that which I have proved to be the most conformable with experience, the most beneficial, nay, exclusively so, to humanity. The "green ass," in the fable of Gellert,* will always have a great number of followers; and if to-day, at this very hour, Cicero proceeded to the piazza of St. Peter's to deliver one of his renowned orations, and Cagliostro to the "Piazza del Popolo" to display his impostures, you would see that Cicero would be honored with but a small audience and chary applause, Cagliostro by a concourse of people frantically bent on admiring him. And what, gentlemen, is the true reason of all this? Here it is for you, in two words. The *five senses* are common to all, *good sense* the privilege only of a few; for which reason the great orator would have been understood

* A person more knave than fool painted an ass all green except the legs, which he colored red. Indescribable was the astonishment of the people who flocked in crowds to behold the portentous animal.

and applauded but by a small number, the celebrated impostor by a large multitude.

Solaced, therefore, by this truth, though hard it be, let us undertake, with alacrity, the study of this most difficult art, and approaching patients, let us ever bear in mind, that following in the steps of Hippocrates, we are not here, properly speaking, to cure them, but to aid their respective natures in restoring them to health. "*Medicus curat, natura sanat.*"